

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-175 (Canceled)

176. (New) A shear wall panel system, comprising:
two studs, a first stud on an opposing edge of the system from a second stud;
a top stud joining the first stud and the second stud at a first edge of the shear wall panel system;
a bottom stud joining the first stud and the second stud at a second edge of the shear wall panel system;
a planar sheet of wood-based sheathing; and
an active element, the active element formed from a sheet of metal, wherein the active element, when viewed in cross-section, includes a first planar edge region and a second planar edge region separated by angled surfaces, the angled surfaces angled relative to the first planar edge region and the second planar edge region,
wherein a first planar edge region is fastened to the first stud and a second planar edge region is fastened by a fastener to a first edge portion of the planar sheet, and
wherein a second portion of the planar sheet is fastened to the second stud.

177. (New) The shear wall panel system of claim 176, wherein angled surfaces of the active element form a v-shape having an apex angle, and
wherein a distal edge of the angled surface forming a leg of the v-shape is joined to one of the first planar edge region and the second planar edge region.

178. (New) The shear wall panel system of claim 177, wherein the active element has at least two portions, the first portion at a first location proximal to the top stud and the second portion at a second location distal from the top stud,

wherein a first horizontal component of shear on the force resistant building system increases the apex angle in the first portion, and reduces the apex angle in the second portion, and

wherein a second horizontal component of shear on the force resistant building system reduces the apex angle in the first portion, and increases the apex angle in the second portion, the first horizontal component of shear generally opposite in direction to the second horizontal component of shear.

179. (New) The shear wall panel system of claim 176, wherein the first planar edge region and the second planar edge region are co-planar.

180. (New) The shear wall panel system of claim 176, wherein the first planar edge region and the second planar edge region are parallel.

181. (New) The shear wall panel system of claim 176, wherein angled surfaces of the active element form a truncated v-shape with a distal end of each leg of the truncated v-shape joined to one of the first planar edge region and the second planar edge region.

182. (New) The shear wall panel system of claim 176, wherein the active element includes two pairs of angled surfaces between the first planar edge region and the second planar edge region, a first pair of angled surfaces oriented in parallel relationship to a second pair of angled surfaces.

183. (New) The shear wall panel system of claim 182, wherein the active element includes a spacer element positioned between the two pairs of angled surfaces.

184. (New) The shear wall panel system of claim 182, wherein the spacer element has a surface that is coplanar with the first planar edge region and the second planar edge region or that is in a plane parallel to the first planar edge region and the second planar edge region.

185. (New) The shear wall panel system of claim 176, wherein the active element has a force versus deflection property under at least one cyclic load that includes an elastic region and a plastic region, and

wherein, in the plastic region, deflection increases more per unit load than in the elastic region as load increases.

186. (New) The shear wall panel system of claim 176, wherein angled surfaces of the active element form a v-shape with a distal end of each leg of the v-shape joined to one of the first planar edge region and the second planar edge region.

187. (New) The shear wall panel system of claim 186, wherein the v-shape is non-symmetrical about a bisector of the an apex of the v-shape.

188. (New) The shear wall panel system of claim 176, wherein angled surfaces of the active element form a truncated v-shape with a distal end of each leg

of the truncated v-shape joined to one of the first planar edge region and the second planar edge region.

189. (New) The shear wall panel system of claim 176, wherein at least one aperture is disposed through the active element.

190. (New) The shear wall panel system of claim 176, wherein the second planar edge region is also fastened to the second stud.

191. (New) A building including the shear wall panel system of any one of claims 176 to 190.

192. (New) A shear wall panel system, comprising:
two studs, a first stud on an opposing edge of the system from a second stud;
a top stud joining the first stud and the second stud at a first edge of the shear wall panel system;
a bottom stud joining the first stud and the second stud at a second edge of the shear wall panel system;
a planar sheet of wood-based sheathing;
an opening in the planar sheet;
a frame adjacent a peripheral edge of the opening, the frame comprising one framing member parallel to an edge of the opening; and
an active element, the active element formed from a sheet of metal, wherein the active element, when viewed in cross-section, includes a first planar edge region and a second planar edge region separated by angled surfaces, the angled surfaces angled relative to the first planar edge region and the second planar edge region,

wherein a first planar edge region is fastened to the framing member and a second planar edge region is fastened by a fastener to a first edge portion of the sheet of sheathing, and

wherein a second edge portion of the sheet of sheathing is fastened to the first stud.

193. (New) The shear wall panel system of claim 192, wherein angled surfaces of the active element form a v-shape having an apex angle, and

wherein a distal edge of the angled surface forming a leg of the v-shape is joined to one of the first planar edge region and the second planar edge region.

194. (New) The shear wall panel system of claim 193, wherein the active element has at least two portions, the first portion at a first location proximal to the top stud and the second portion at a second location distal from the top stud,

wherein a first horizontal component of shear on the force resistant building system increases the apex angle in the first portion, and reduces the apex angle in the second portion, and

wherein a second horizontal component of shear on the force resistant building system reduces the apex angle in the first portion, and increases the apex angle in the second portion, the first horizontal component of shear generally opposite in direction to the second horizontal component of shear.

195. (New) The shear wall panel system of claim 192, wherein the first planar edge region and the second planar edge region are co-planar.

196. (New) The shear wall panel system of claim 192, wherein the first planar edge region and the second planar edge region are parallel.

197. (New) The shear wall panel system of claim 192, wherein angled surfaces of the active element form a truncated v-shape with a distal end of each leg

of the truncated v-shape joined to one of the first planar edge region and the second planar edge region.

198. (New) The shear wall panel system of claim 192, wherein the active element includes two pairs of angled surfaces between the first planar edge region and the second planar edge region, a first pair of angled surfaces oriented in parallel relationship to a second pair of angled surfaces.

199. (New) The shear wall panel system of claim 198, wherein the active element includes a spacer element positioned between the two pairs of angled surfaces.

200. (New) The shear wall panel system of claim 198, wherein the spacer element has a surface that is coplanar with the first planar edge region and the second planar edge region or that is in a plane parallel to the first planar edge region and the second planar edge region.

201. (New) The shear wall panel system of claim 192, wherein the active element has a force versus deflection property under at least one cyclic load that includes an elastic region and a plastic region, and

wherein, in the plastic region, deflection increases more per unit load than in the elastic region as load increases.

202. (New) The shear wall panel system of claim 192, comprising:
a second active element, the second active element formed from a sheet of metal,

wherein the second active element, when viewed in cross-section, includes a first planar edge region and a second planar edge region separated by angled

surfaces, the angled surfaces angled relative to the first planar edge region and the second planar edge region, and

wherein a first planar edge region of the second active element is fastened to a second framing member and a second planar edge region of the second active element is fastened by a fastener to the first edge portion of the sheet of sheathing.

203. (New) The shear wall panel system of claim 192, wherein angled surfaces of the active element form a v-shape with a distal end of each leg of the v-shape joined to one of the first planar edge region and the second planar edge region.

204. (New) The shear wall panel system of claim 203, wherein the v-shape is non-symmetrical about a bisector of the an apex of the v-shape.

205. (New) The shear wall panel system of claim 192, wherein angled surfaces of the active element form a truncated v-shape with a distal end of each leg of the truncated v-shape joined to one of the first planar edge region and the second planar edge region.

206. (New) The shear wall panel system of claim 192, wherein at least one aperture is disposed through the active element.

207. (New) The shear wall panel system of claim 192, wherein the opening in the planar sheet is sized for a window or a door.

208. (New) The shear wall panel system of claim 192, wherein the opening in the planar sheet is sized for a passageway or doorway.

209. (New) The shear wall panel system of claim 192, wherein the second planar edge region is also fastened to the first stud.

210. (New) The shear wall panel system of claim 192, wherein the second planar edge region is also fastened to the second stud.

211. (New) A building including the shear wall panel system of any one of claims 192 to 210.

212. (New) A shear wall panel system, comprising:
two studs, a first stud on an opposing edge of the system from a second stud;
a top stud joining the first stud and the second stud at a first edge of the shear wall panel system;
a bottom stud joining the first stud and the second stud at a second edge of the shear wall panel system;
a planar sheet of metal sheathing;
an opening in the planar sheet;
a frame adjacent a peripheral edge of the opening, the frame comprising one framing member parallel to an edge of the opening; and
an active element, the active element formed from a sheet of metal, wherein the active element, when viewed in cross-section, includes a first planar edge region and a second planar edge region separated by angled surfaces, the angled surfaces angled relative to the first planar edge region and the second planar edge region,

wherein a first planar edge region is fastened to the framing member and a second planar edge region is fastened by a fastener to a first edge portion of the sheet of sheathing, and

wherein a second edge portion of the sheet of sheathing is fastened to the first stud.

213. (New) The shear wall panel system of claim 212, wherein angled surfaces of the active element form a v-shape having an apex angle, and

wherein a distal edge of the angled surface forming a leg of the v-shape is joined to one of the first planar edge region and the second planar edge region.

214. (New) The shear wall panel system of claim 213, wherein the active element has at least two portions, the first portion at a first location proximal to the top stud and the second portion at a second location distal from the top stud,

wherein a first horizontal component of shear on the force resistant building system increases the apex angle in the first portion, and reduces the apex angle in the second portion, and

wherein a second horizontal component of shear on the force resistant building system reduces the apex angle in the first portion, and increases the apex angle in the second portion, the first horizontal component of shear generally opposite in direction to the second horizontal component of shear.

215. (New) The shear wall panel system of claim 212, wherein the first planar edge region and the second planar edge region are co-planar.

216. (New) The shear wall panel system of claim 212, wherein the first planar edge region and the second planar edge region are parallel.

217. (New) The shear wall panel system of claim 212, wherein angled surfaces of the active element form a truncated v-shape with a distal end of each leg

of the truncated v-shape joined to one of the first planar edge region and the second planar edge region.

218. (New) The shear wall panel system of claim 212, wherein the active element includes two pairs of angled surfaces between the first planar edge region and the second planar edge region, a first pair of angled surfaces oriented in parallel relationship to a second pair of angled surfaces.

219. (New) The shear wall panel system of claim 218, wherein the active element includes a spacer element positioned between the two pairs of angled surfaces.

220. (New) The shear wall panel system of claim 218, wherein the spacer element has a surface that is coplanar with the first planar edge region and the second planar edge region or that is in a plane parallel to the first planar edge region and the second planar edge region.

221. (New) The shear wall panel system of claim 212, wherein the active element has a force versus deflection property under at least one cyclic load that includes an elastic region and a plastic region, and

wherein, in the plastic region, deflection increases more per unit load than in the elastic region as load increases.

222. (New) The shear wall panel system of claim 212, comprising:
a second active element, the second active element formed from a sheet of metal,

wherein the second active element, when viewed in cross-section, includes a first planar edge region and a second planar edge region separated by angled

surfaces, the angled surfaces angled relative to the first planar edge region and the second planar edge region, and

wherein a first planar edge region of the second active element is fastened to a second framing member and a second planar edge region of the second active element is fastened by a fastener to the first edge portion of the sheet of sheathing.

223. (New) The shear wall panel system of claim 212, wherein angled surfaces of the active element form a v-shape with a distal end of each leg of the v-shape joined to one of the first planar edge region and the second planar edge region.

224. (New) The shear wall panel system of claim 223, wherein the v-shape is non-symmetrical about a bisector of the an apex of the v-shape.

225. (New) The shear wall panel system of claim 212, wherein angled surfaces of the active element form a truncated v-shape with a distal end of each leg of the truncated v-shape joined to one of the first planar edge region and the second planar edge region.

226. (New) The shear wall panel system of claim 212, wherein at least one aperture is disposed through the active element.

227. (New) The shear wall panel system of claim 212, wherein the opening in the planar sheet is sized for a window or a door.

228. (New) The shear wall panel system of claim 212, wherein the opening in the planar sheet is sized for a passageway or doorway.

229. (New) The shear wall panel system of claim 212, wherein the second planar edge region is also fastened to the first stud.

230. (New) A building including the shear wall panel system of any one of claims 212 to 229.

231. (New) A shear wall panel system, comprising:
two studs, a first stud on an opposing edge of the system from a second stud;
a top stud joining the first stud and the second stud at a first edge of the shear wall panel system;
a bottom stud joining the first stud and the second stud at a second edge of the shear wall panel system;
a planar sheet of sheathing formed from engineered composite;
an opening in the planar sheet;
a frame adjacent a peripheral edge of the opening, the frame comprising one framing member parallel to an edge of the opening; and
an active element, the active element formed from a sheet of metal,
wherein the active element, when viewed in cross-section, includes a first planar edge region and a second planar edge region separated by angled surfaces, the angled surfaces angled relative to the first planar edge region and the second planar edge region,
wherein a first planar edge region is fastened to the framing member and a second planar edge region is fastened by a fastener to a first edge portion of the sheet of sheathing, and

wherein a second edge portion of the sheet of sheathing is fastened to the first stud.

232. (New) The shear wall panel system of claim 231, wherein angled surfaces of the active element form a v-shape having an apex angle, and

wherein a distal edge of the angled surface forming a leg of the v-shape is joined to one of the first planar edge region and the second planar edge region.

233. (New) The shear wall panel system of claim 232, wherein the active element has at least two portions, the first portion at a first location proximal to the top stud and the second portion at a second location distal from the top stud,

wherein a first horizontal component of shear on the force resistant building system increases the apex angle in the first portion, and reduces the apex angle in the second portion, and

wherein a second horizontal component of shear on the force resistant building system reduces the apex angle in the first portion, and increases the apex angle in the second portion, the first horizontal component of shear generally opposite in direction to the second horizontal component of shear.

234. (New) The shear wall panel system of claim 231, wherein the first planar edge region and the second planar edge region are co-planar.

235. (New) The shear wall panel system of claim 231, wherein the first planar edge region and the second planar edge region are parallel.

236. (New) The shear wall panel system of claim 231, wherein angled surfaces of the active element form a truncated v-shape with a distal end of each leg of the truncated v-shape joined to one of the first planar edge region and the second planar edge region.

237. (New) The shear wall panel system of claim 231, wherein the active element includes two pairs of angled surfaces between the first planar edge region and the second planar edge region, a first pair of angled surfaces oriented in parallel relationship to a second pair of angled surfaces.

238. (New) The shear wall panel system of claim 237, wherein the active element includes a spacer element positioned between the two pairs of angled surfaces.

239. (New) The shear wall panel system of claim 237, wherein the spacer element has a surface that is coplanar with the first planar edge region and the second planar edge region or that is in a plane parallel to the first planar edge region and the second planar edge region.

240. (New) The shear wall panel system of claim 231, wherein the active element has a force versus deflection property under at least one cyclic load that includes an elastic region and a plastic region, and

wherein, in the plastic region, deflection increases more per unit load than in the elastic region as load increases.

241. (New) The shear wall panel system of claim 231, comprising:
a second active element, the second active element formed from a sheet of metal,

wherein the second active element, when viewed in cross-section, includes a first planar edge region and a second planar edge region separated by angled surfaces, the angled surfaces angled relative to the first planar edge region and the second planar edge region, and

wherein a first planar edge region of the second active element is fastened to a second framing member and a second planar edge region of the second active element is fastened by a fastener to the first edge portion of the sheet of sheathing.

242. (New) The shear wall panel system of claim 231, wherein angled surfaces of the active element form a v-shape with a distal end of each leg of the v-shape joined to one of the first planar edge region and the second planar edge region.

243. (New) The shear wall panel system of claim 242, wherein the v-shape is non-symmetrical about a bisector of the an apex of the v-shape.

244. (New) The shear wall panel system of claim 231, wherein angled surfaces of the active element form a truncated v-shape with a distal end of each leg of the truncated v-shape joined to one of the first planar edge region and the second planar edge region.

245. (New) The shear wall panel system of claim 231, wherein at least one aperture is disposed through the active element.

246. (New) The shear wall panel system of claim 231, wherein the opening in the planar sheet is sized for a window or a door.

247. (New) The shear wall panel system of claim 231, wherein the opening in the planar sheet is sized for a passageway or doorway.

248. (New) The shear wall panel system of claim 231, wherein the second planar edge region is also fastened to the first stud.

249. (New) A building including the shear wall panel system of any one of claims 231 to 248.